THE SAGAS PROJECT

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Abstract

We summarize the scientific and technological aspects of the SAGAS (Search for Anomalous Gravitation using Atomic Sensors) project, submitted to ESA in June 2007 in response to the Cosmic Vision 2015-2025 call for proposals. The proposed mission aims at flying highly sensitive atomic sensors (optical clock, cold atom accelerometer, optical link) on a Solar System escape trajectory in the 2020 to 2030 time-frame. SAGAS has numerous science objectives in fundamental physics and Solar System science, for example numerous tests of general relativity and the exploration of the Kuiper belt. The combination of highly sensitive atomic sensors and of the laser link well adapted for large distances will allow measurements with unprecedented accuracy and on scales never reached before. We present the proposed mission in some detail, with particular emphasis on the science goals and associated measurements and technologies.